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SOME NOTES ON THE OLIVIDAE—III.

BY CHARLES W. JOHNSON.

The occidental species of the genus *Oliva*, from shell characters alone, seem to divide into two groups, the one containing the larger and beautiful *O. porphyria* Linné and the smaller *splendidula* Sowb., found only on the Pacific side from Panama to Mazatlan. The other, a group of analogous species, is represented on the Pacific side by *O. spicata* Bolten, *peruviana* Lam., *incrassata* Sol., and *julietta* Ducl., and on the Atlantic side by *O. reticularis* Lam. *circinata* Mart. and *fulgurator* Bolten. It is as difficult to clearly define the species on this coast as on the other, and specimens of *O. spicata* and *reticularis* often very closely resemble each other, thus indicating a common origin.

OLIVA SPICATA (Bolten).

Porphyria spicata Bolt., Mus. Boltenianum, p. 35, 1798.

Porphyria arachnoidea Bolt., l. c. p. 36, 1798.

Oliva araneosa Lam., Ann. du Mus. XVI, p. 315, 1810.

Both Bolten and Lamarck refer to the same figure by Martini (Conch. Cab., II, tab. 48, fig. 509) and Bolten refers to it a second time under *arachnoidea*. In adopting Lamarck's names, *venulata* (p. 313) should have been the species, as it appeared before *araneosa* (p. 315). The first figure referred to by Lamarck under *venulata* is in the Encycl. Meth., pl. 361, f. 5; the second reference is to Martini (II, tab. 46, f. 488) and happens to be the figure on which Bolten based his *litterata*. It includes the oblong forms scarcely separable

from the typical *spicata*, it, however, prevents the use of Lamarck's name of *litterata*. *O. graphica* and *porcea* Mart. are only shorter and more ovate forms.

Among the variations of this species is an interesting form from San Ignacio Lagoon, Lower California, collected by Mr. Henry Hemphill. It is noticeably narrower with a much higher spire and the periphery slightly angulate, the reddish reticulations are obscured by a milky-white layer. Represented in the Ford collection by six specimens bearing the manuscript name of *hemphilli*. The variety *pindarina* Ducl. (*punctata* Marr.) is the common, slightly angulate form, quite regularly marked with dark-brown or white, obsoletely marked with light-brown, frequently entirely white, fasciole reddish. Specimens in which the markings are obscured by a dark-brown layer constitute the *fuscata* Marr.; similar specimens having the form of *graphica* are *ustulata* Lam. Brown examples of the typical *spicata* might bear the name *perfecta*. Specimens abnormally angulated at the periphery constitute the *subangulata* Phil. The variety *polpasta* Ducl. is the short broad form so densely marked as to form an olive-green ground, spotted with dark-brown, and with white triangles below the suture. The variety *cumingii* Reeve is yellow, banded or streaked with brown, it often suggests *O. peruviana* Lam.

OLIVA PERUVIANA Lamarck.

This species varies greatly in color, but lacks the finely reticulated patterns of *spicata*. The typical form is spotted; those with irregular longitudinal streaks of brown are the *fulgurata* Martens (non Ads. & Rev.). The light-colored specimens might be called *livida* and the dark-chesnut-colored form *castanea* Ford, manuscript.

OLIVA JULIETTÆ DUCLOS.

This is apparently a good species, the thickening of the outer lip suggests a closer relationship to *O. incrassata* Sol. than to *spicata*, although the young of the three species closely resemble each other.

OLIVA INCRASSATA (Solander).

Voluta incrassata Sol., Portland Cat., p. 171, 1786.

Oliva angulata Lam., Ann. du Mus., XVI, p. 310, 1810.

Solander and Lamarck both refer to the same figures by Martini (Conch. Cab., II, tab. 47, figs. 499, 500). The *O. timorea* Ducl.

probably represents a small local variety, the locality "Timor" may well be questioned. The white form is var. *nivea* Pilsbry (NAUTILUS XXIII, 132).

OLIVA RETICULARIS Lamarck.

This is almost as variable in color as its Pacific analogue *O. spicata*, but the tendency to become more or less angulate as in that species is not apparent. The typical *reticularis* is the smaller form reticulated with pink or purplish lines, common throughout the West Indies. Large cylindrical forms from the Bahamas are figured by Marrat as *nivosa*. These resemble very closely specimens of *circinata* from the Gulf coast of Florida. The *O. pallida* Marr., probably represents an immaculate form of *nivosa*, and *quersolina* Ducl. as figured by Marrat, the albinistic form of the typical *reticularis*. Specimens of *nivosa* banded and streaked with an outer layer of brown are the *formosa* Marr., + *hepatica* Marr. (non Lam.) + *bifasciata* Kuster.

OLIVA CIRCINATA Marrat.

Oliva litterata Lam., Ann. du Mus., XVI, p. 315, 1810. Non Bolten, 1798.

Oliva circinata Marr., Sowerby's Thes. Conch. IV, *Oliva*, p. 21, pl. 17, fig. 277, 1880.

The study of a very large series before me shows conclusively that Marrat's *circinata* is really a form of Lamarck's *litterata* and will have to replace Lamarck's name, which is preoccupied. After describing the species Marrat says: "The Brazilian representative of the West Indian *O. litterata*. It is more rounded and symmetrical and less oblique and the lip is not so spread at the posterior end." The reference to both Brazil and West Indies is very doubtful. The locality is more likely the Gulf coast of Florida as specimens from there agree with Marrat's figure. It is readily separated from *nivosa* by its different color, darker bands and fasciculations below the suture. Specimens from the east coast of Florida are usually longer and more cylindrical. A bright yellowish form is frequently found on the Gulf coast which might bear the name of *citrina*.

OLIVA FULGURATOR (Bolten).

Porphyria fulgurator Bolt., Mus. Boltenianum, p. 36, 1798.

Oliva ispida Link, Marrat, Thes. Conch., IV, *Oliva*, 12, figs. 15, 16.

Oliva fusiformis Lam., Ann. du Mus., XVI, p. 318, 1810.

Oliva obesina Ducl., Monogr., in Comp. Rendus, II, tab. 16, figs. 9-11, 1835.

Both Bolten and Lamarck again refer to the same figure by Martini (Conch. Cab. II, tab. 51, f. 562) Lamarck's first reference is to a similar figure in the Encyl. Meth., plate 367, fig. 7. The markings are coarser than in *O. reticularis*. Specimens are frequently obsoletely banded or overlaid with brown. *O. bullata* Marr., seems to be a narrow form of this species.

Since my notes appeared in the October NAUTILUS my friend Mr. Charles Hedley, of Sydney, Australia, has written that *Oliva oliva* Linné should be used in place of *Oliva vidua* Bolton. In this I now agree although at first I thought it was difficult to decide just what form should bear Linné's name. Hanley says: "Still it is not unworthy of remark that the *Oliva nigrita* of Karsten (*O. maura* of Sowerby, Genera Shells) has been indicated as the principal variety or form in the 'Museum Ulricæ' and that all cited engravings (Argenville alone excepted) of the tenth edition of the 'Systema' wherein the species originally appeared, pertain to that shell."

Mr. Hedley also calls my attention to *Oliva annulata* Gmelin (Syst. Nat., p. 3441, 1792) which I have entirely overlooked. This replaces *O. amethystina* Bolten. Both references—Lister's Conch., tab. 717, f. 1, and Martini, Conch. Cab., II, tab. 51, f. 567, refer to the white form with a revolving ridge, "testa lævi alba dorsi annulo carinato." It seems unfortunate that this pale, abnormal form should become the typical, and the beautiful normal form the variety *amethystina*.

NOTES ON CALIFORNIA SHELLS. III.

BY WILLIAM H. DALL.

In a brief resumé of notable things observed in the collections on the California coast which I was privileged to visit last summer, it is impracticable to mention all the collections visited, notwithstanding nearly every one contained something of special interest, and the courtesy and hospitality of the collectors was unailing and